

SUPPORT FOR THE AMENDMENT

This Amendment amends Claim 12; and adds new Claim 33. Support for the amendments is found in the specification and claims as originally filed. In particular, support for new Claim 33 is found at least in Claim 2. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-2, 4-17, 20-24 and 33 will be pending in this application. Claim 1 is independent.

REQUEST FOR WITHDRAWAL OF FINALITY OF FINAL REJECTION

Applicants respectfully request that the finality of the Final Rejection dated March 28, 2007, be withdrawn.

Pursuant to MPEP 706.07(a):

Under present practice, second or any subsequent actions on the merits shall be final, **except where** the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). MPEP 706.07(a), page 700-82, column 2 (emphasis added).

The first, non-final, Office Action dated September 8, 2006, did not reject Claim 18 over *Journal of Electroanalytical Chemistry*, 465: 200-208 (1999) ("Charlier") or over U.S. Patent No. 5,350,323 ("Boissel").

The Amendment filed December 21, 2006, incorporated Claim 18 into independent Claim 1.

The Final Rejection dated March 28, 2007, rejects independent Claim 1 (which now includes the limitations of Claim 18) as anticipated by each of Charlier and Boissel.

No Information Disclosure Statement was filed between the Office Action dated September 8, 2006, and the Final Rejection dated March 28, 2007.

Because the rejections of independent Claim 1 over each of Charlier and Boissel in the Final Rejection dated March 28, 2007, were not necessitated by amendment or IDS, the finality of the Final Rejection dated March 28, 2007, is improper and should be withdrawn.

Accordingly, Applicants respectfully request that the finality of the Final Rejection dated March 28, 2007, be withdrawn

### REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides a process for mask-free localized grafting of organic molecules on a composite surface.

Claims 1-2, 4, 7-9, 12, 14-17 and 19-24 are rejected under 35 U.S.C. § 102(b) over *Journal of Electroanalytical Chemistry*, 465: 200-208 (1999) ("Charlier"). Charlier discloses that the electropolymerization of methacrylonitrile and N-vinyl-2-pyrrolidone in anhydrous acetonitrile was followed *in situ* using an electrochemical quartz crystal microbalance (EQCM) by monitoring the buildup of electrografted polymer on the quartz crystal. Charlier at abstract. Charlier discloses that the EQCM measurements used AT-cut crystals coated with Pt deposited over a Ti adhesion layer. Charlier discloses that the quartz crystals were metallized on both faces. Charlier at Experimental on pages 201-202.

Thus, Charlier discloses electrografting polymer onto a ***multilayered composite material***, which has an exposed outermost layer that is Pt.

However, Charlier fails to disclose or suggest electrografting organic molecules onto a ***composite surface*** comprising ***different materials***. Charlier fails to suggest the independent Claim 1 limitations of a "process for mask-free localized grafting of organic molecules ... onto a composite surface comprising conductive and/or semiconductive ***portions***, the process comprising placing said organic molecules in contact with said composite surface; and electrochemically grafting an insulating film of said organic molecules on chosen, defined areas of said conductive and/or semiconductive portions ...".

Thus, the rejection over Charlier should be withdrawn.

Claims 1-2, 7 and 14 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,350,323 ("Boissel"). Boissel discloses a contact for an electrical contractor protected by a

polymer film. Boissel at abstract. Boissel discloses that between the base metal of the contact and the polymer film is intercalated a metal underlayer. Boissel at column 1, lines 43-46. Boissel discloses at Example 1 a brass surface on which is deposited a nickel underlayer followed by an polyacrylonitrile film.

Thus, Boissel discloses depositing a polymer film onto a **composite material**, which has an exposed outermost layer (the "underlayer") that is a metal.

The polymer film disclosed in Boissel is deposited on the surface by electropolymerization and under cathodic polymerization, as indicated at step (a) of the process. Boissel at column 2, lines 5-7.

Thus, Boissel's polymer film is **deposited** and not electrografted.

As a result, Boissel fails to disclose or suggest **electrografting** organic molecules onto a **composite surface** comprising *different materials*. Boissel fails to suggest the independent Claim 1 limitations of a "process for mask-free localized **grafting** of organic molecules ... onto a composite surface comprising conductive and/or semiconductive **portions**, the process comprising placing said organic molecules in contact with said composite surface; and electrochemically grafting an insulating film of said organic molecules on chosen, defined areas of said conductive and/or semiconductive portions ...".

Thus, the rejection over Boissel should be withdrawn.

Claims 1-2, 4-17 and 20-24 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 4,269,682 ("Yano") in view of Boissel.

The present invention provide a process for a localized functionalized with organic molecules of defined areas of a surface, while overcoming and solving the problems posed by conventional process as regarding the resolution of the masking phases and the strength of attachment of the coating.

Yano discloses a system for measuring chemical properties of a substance in an electrolyte. The system disclosed in Yano comprises a measuring unit with a reference electrode comprising an insulated gate field effect transistor (FET) whose gate region is overlaid with a polymeric membrane and a pseudo reference electrode. Yano at column 3, lines 34-39.

The electrode presented in Yano's Fig. 3 is a two-layered structure of silicon dioxide (23) and of silicon nitride (24), while the reference (22) corresponds to the pseudo reference electrode. Yano at column 9, lines 15-23. Thus, the surface onto which Yano's ion-sensitive membrane (26) and hydrophobic organic membrane (25) are coated is not a composite surface, but instead is the surface of a ***multilayered composite material***.

Thus, like Charlier and Boissel, discussed above, Yano fails to suggest the independent Claim 1 limitation of electrografting organic molecules onto a **composite surface** comprising ***different materials***.

Yano discloses that the polymeric membrane is formed by polymerizing monomers. Yano at column 4, lines 58-59.

The Final Rejection at page 7, lines 1-2, admits that Yano does not explicitly suggest that the polymerization be carried out by electrografting.

The Final Rejection at page 7, line 5, relies upon Boissel for disclosing "electropolymerization".

However, as discussed above, the polymer film disclosed in Boissel is deposited on the surface by electropolymerization and under cathodic polymerization, as indicated at step (a) of the process. Boissel at column 2, lines 5-7. Thus, Boissel's polymer film is **deposited** and not electrografted.

Thus, the cited prior art fails to suggest electrografting organic molecules onto a composite surface. The cited prior art fails to suggest the independent Claim 1 limitation of "**electrochemically grafting** an insulating film of said organic molecules on chosen, defined areas of said conductive and/or semiconductive portions".

Furthermore, Boissel discloses that a mask consisting of an aluminum layer is used for the polymer coating on defined areas. Boissel at column 9, lines 48-64. Boissel discloses neither the electrografting nor the mask-free process for a localized functionalization of the present invention.

Because the cited prior art fails to suggest all the limitations of independent Claim 1, the rejection under 35 U.S.C. § 103(a) should be withdrawn.

Claims 12-17 are rejected under 35 U.S.C. § 112, second paragraph. To obviate the rejection, Claim 12 is amended to recite "said organic molecules include electrocleavable molecules". Applicants submit that one group of moleculess can include a sub-group of moleculess.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 03/06)

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

A handwritten signature in cursive script, reading "Corwin Paul Umbach".

---

Corwin P. Umbach, Ph.D.  
Registration No. 40,211